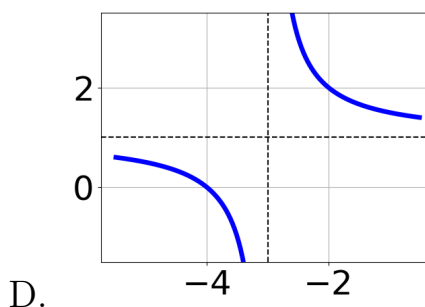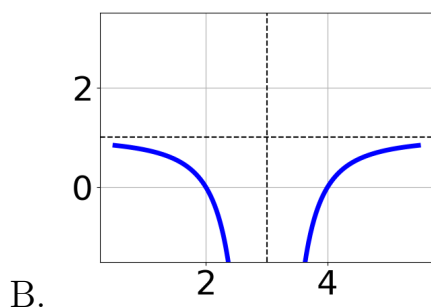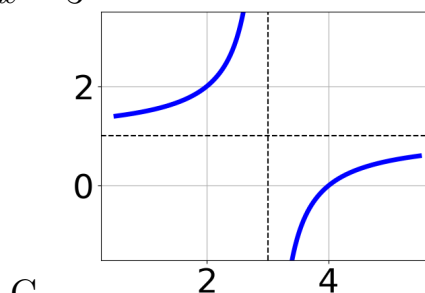1. Choose the graph of the equation below.

$$f(x) = \frac{-1}{x-3} + 1$$

A.

B.

C.

D.

E. None of the above.

---

2. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{-3}{-9x+9} + 2 = \frac{9}{81x-81}$$

A. All solutions lead to invalid or complex values in the equation.

B. $x \in [0.89, 1.89]$

C. $x_1 \in [-0.8, 0.5]$ and $x_2 \in [-1.11, 2.89]$

D. $x \in [-2.8, -0.5]$

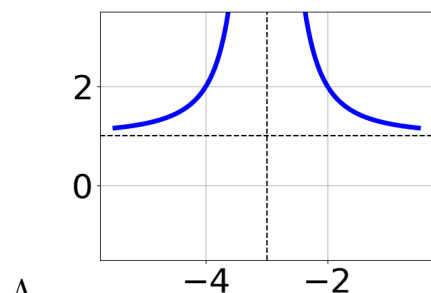E. $x_1 \in [-2.8, -0.5]$ and $x_2 \in [-1.11, 2.89]$

---

3. Choose the graph of the equation below.

$$f(x) = \frac{-1}{x+2} + 2$$
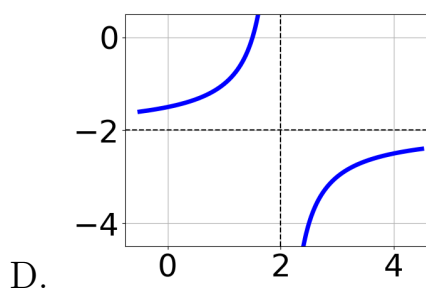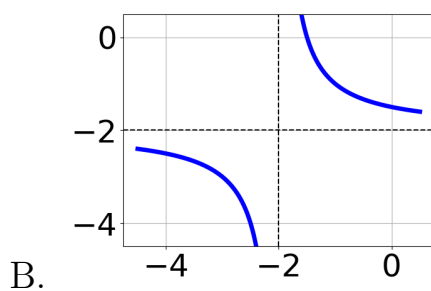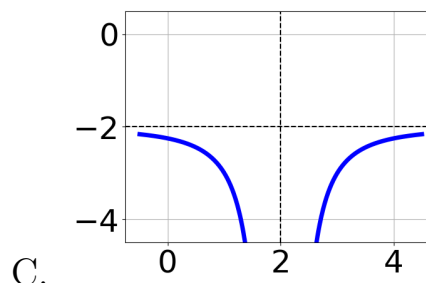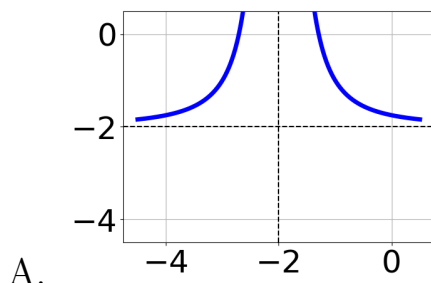
A.

C.

B.

D.

E. None of the above.

---

4. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{-45}{-72x + 18} + 1 = \frac{-45}{-72x + 18}$$

A. $x_1 \in [-0.7, -0.1]$ and $x_2 \in [0.25, 4.25]$

B. $x \in [-0.7, -0.1]$

C. All solutions lead to invalid or complex values in the equation.

D. $x \in [-0.75, 1.25]$

E. $x_1 \in [0.1, 0.9]$ and $x_2 \in [0.25, 4.25]$

---

5. Determine the domain of the function below.

$$f(x) = \frac{4}{9x^2 - 21x + 12}$$

A. All Real numbers except $x = a$, where $a \in [0.73, 1.27]$

B. All Real numbers except $x = a$ and $x = b$, where $a \in [0.73, 1.27]$ and $b \in [1.07, 1.91]$

C. All Real numbers except $x = a$, where $a \in [8.88, 9.19]$

D. All Real numbers.

E. All Real numbers except $x = a$ and $x = b$, where $a \in [8.88, 9.19]$ and $b \in [11.76, 12.03]$

6. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

$$\frac{-6x}{3x + 6} + \frac{-5x^2}{21x^2 + 57x + 30} = \frac{-5}{7x + 5}$$

A. $x_1 \in [0.48, 0.9]$ and $x_2 \in [-1.97, 4.03]$

B. All solutions lead to invalid or complex values in the equation.

C. $x \in [-1.35, -0.83]$

D. $x \in [-0.88, -0.71]$

E. $x_1 \in [0.48, 0.9]$ and $x_2 \in [-5, -1]$

7. Determine the domain of the function below.

$$f(x) = \frac{4}{18x^2 + 21x - 15}$$

A. All Real numbers.

B. All Real numbers except $x = a$, where $a \in [-4.67, -0.67]$

C. All Real numbers except $x = a$ and $x = b$, where $a \in [-4.67, -0.67]$ and $b \in [-0.5, 1.5]$

D. All Real numbers except $x = a$, where $a \in [-17, -12]$

E. All Real numbers except $x = a$ and $x = b$, where $a \in [-17, -12]$ and $b \in [15, 20]$

8. Solve the rational equation below. Then, choose the interval(s) that the solution(s) belongs to.

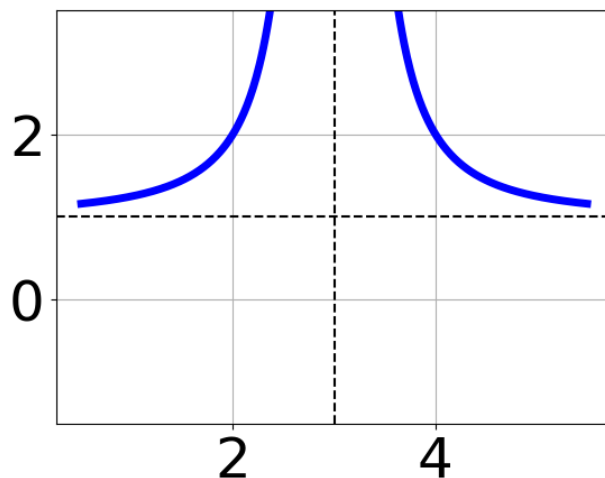$$\frac{-6x}{-6x-4} + \frac{-7x^2}{-30x^2 - 2x + 12} = \frac{3}{5x-3}$$

A. All solutions lead to invalid or complex values in the equation.

B. $x \in [1.09, 1.68]$

C. $x_1 \in [-1.53, -0.16]$ and $x_2 \in [-1.8, -0.3]$

D. $x_1 \in [-1.53, -0.16]$ and $x_2 \in [0.7, 1.5]$

E. $x \in [0.46, 1.06]$

---

9. Choose the equation of the function graphed below.
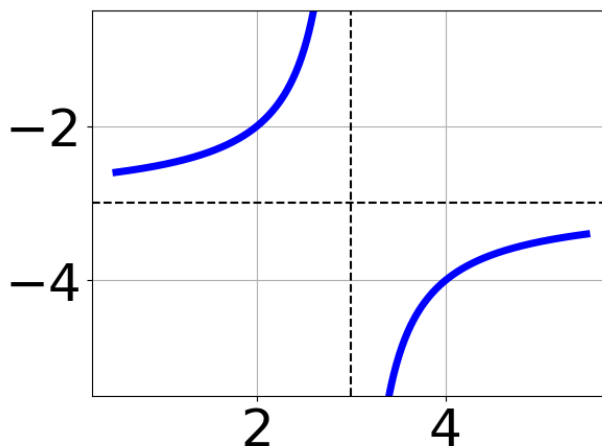


A. $f(x) = \dfrac{1}{(x+3)^2} - 3$

B. $f(x) = \dfrac{1}{x+3} - 3$

C. $f(x) = \dfrac{-1}{x-3} - 3$

D. $f(x) = \dfrac{-1}{(x-3)^2} - 3$

E. None of the above

10. Choose the equation of the function graphed below.



A. $f(x) = \dfrac{1}{x-3} + 1$

B. $f(x) = \dfrac{-1}{(x+3)^2} + 1$

C. $f(x) = \dfrac{-1}{x+3} + 1$

D. $f(x) = \dfrac{1}{(x-3)^2} + 1$

E. None of the above